

Attachment AIn the Claims:

Claims 1-28 (cancelled).

29 (new) A method for determining one or more kinetic parameters of binding between a first binding member and a second binding member comprising:

- (a) adsorbing the first binding member to a surface at a plurality of microspots;
- (b) presenting the second binding member to the first binding member at each of the microspots, there being a plurality of combinations of first binding member surface density and second binding member concentration among the plurality of microspots;
- (c) simultaneously obtaining data indicative of a binding reaction between the first and second binding members at each of the plurality of microspots by a biosensor detection method; and
- (d) processing the data so as to obtain one or more kinetic parameters of binding between the first and second binding members;

wherein in step (a) adsorbing the first binding member to a surface at a plurality of microspots comprises:

- (a) activating the surface in the microspot by presenting thereto a chemical activating substance by:

- (i) forming a first channel around a region containing the microspot;
- (ii) introducing a solution containing the activating substance into the channel; and
- (iii) removing excess activating solution from the channel;

- (b) adsorbing the first binding member to the microspot; and

- (c) deactivating the microspot.

30 (new) The method according to Claim 29 wherein the biosensor detection method is selected from surface plasmon resonance (SPR), critical angle refractometry, total internal fluorescence (TIRF), total internal reflection phosphorescence, total internal reflection light scattering, evanescent wave ellipsometry, and Brewster angle reflectometry.

31 (new) The method according to Claim 29 wherein the detection method is SPR and the data indicative of a binding reaction between the first and second binding members at each of the plurality of microspots is an SPR parameter selected from the SPR resonance angle, resonance wavelength, reflectance changes, and phase changes.

32 (new) The method according to Claim 29, wherein the one or more kinetic parameters are selected from an association constant K_a a dissociation constant K_d and an affinity constant.

33 (new) The method according to Claim 29 wherein the step of adsorption to the microspot involves:

- a. forming a channel around a region containing the microspot;
- b. introducing a solution containing the molecular species into the channel; and
- c. removing excess solution from the channel.

34 (new) The method according to Claim 29, wherein the step of activating the surface of the microspot involves producing an electric field over the microspot.

35 (new) The method according to Claim 29 further comprising:

- a. deactivating portions of the surface not included in a microspot;
- b. forming one or more second channels perpendicular to one or more of the first channels; and

c. for each second channel, introducing into the second channel a second binding member.

36 (new) The method according to any one of the previous claims further comprising obtaining reference data from a region of the surface not included in a microspot.

37 (new) A method for localizing a molecular species at each of two or more microspots on a surface, comprising, for each of one or more localization regions:

- a. activating the surface in the localization region;
- b. for each of one or more microspots in the localization region, adsorbing a molecular species to the microspot; and
- c. optionally deactivating the localization region.

38 (new) The method according to Claim 37, wherein the step of activating the surface involves:

- a. forming a first channel around the localization region;
- b. introducing a solution containing an activating substance into the channel; and
- c. removing excess activating solution from the channel.

39 (new) The method according to Claim 37, wherein the step of activating the microspot involves producing an electric field over the microspot.

40 (new) The method according to Claim 37 wherein the step of adsorbing a molecular species to the microspot involves:

- a. forming a channel perpendicular the localization region;
- b. introducing a solution containing the molecular species into the channel; and
- c. removing excess solution from the channel.

41 (new) The method according to Claim 40 wherein the molecular species is a first binding member and the method further comprises:

- a. deactivating portions of the surface not included in a localization region;
- b. forming one or more second channels perpendicular to one or more of the first channels; and
- c. for each second channel, introducing into the second channel a second binding member.

42 (new) A probe array produced by the method of any one of Claim 37.

43 (new) The method according to Claim 30 wherein the detection method is SPR and the data indicative of a binding reaction between the first and second binding members at each of the plurality of microspots is an SPR parameter selected from the SPR resonance angle, resonance wavelength, reflectance changes, and phase changes.

44 (new) The method according to Claim 30, wherein the one or more kinetic parameters are selected from an association constant K_a a dissociation constant K_d and an affinity constant.

45 (new) The method according to Claim 31, wherein the one or more kinetic parameters are selected from an association constant K_a a dissociation constant K_d and an affinity constant.

46 (new) A probe array produced by the method of any one of Claim 41.